VOCABULARY: A CRITICAL COMPONENT OF COMPREHENSION

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Vocabulary development and the role it plays in reading skills acquisition have received much less attention than decoding and comprehension strategies. There is a close relationship between vocabulary and comprehension; hence, individuals with poor vocabulary have difficulty understanding written text. Further, students with poor vocabulary knowledge read less and acquire fewer new words, while students with better vocabulary knowledge read more and improve their comprehension (the Matthew Effect). To prevent the Matthew Effect from taking hold, vocabulary assessment and instruction should become important components of reading programs for struggling readers with vocabulary problems.

A well-developed meaning vocabulary is a prerequisite for fluent reading, a critical link between decoding and comprehension. However, the role of vocabulary in fluent reading has received much less attention in both research and theory than have decoding and comprehension strategies. In this article, I shall briefly review many of the studies that have shown that adequate vocabulary is important for fluent reading (e.g., Allington, 2000; Chall, 1983; Juel, 1995; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998), identify several assessment instruments available to measure vocabulary, and discuss a number of instructional techniques that are useful for teaching vocabulary.

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RELATIONSHIP BETWEEN MEANING VOCABULARY AND COMPREHENSION

Over the past few decades, research in cognitive psychology has shown that decoding is an important component of reading (Adams, 1990; Allington, 2000; Chall, 1983; Juel, 1995; Liberman & Liberman, 1990; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998). The perception that reading is comprised merely of decoding and comprehension is illustrated in the “The Simple View of Reading” (Gough & Tunmer, 1986; Hoover & Gough, 1990). In this view, decoding and comprehension are analogous to reading and are directly influenced by one another.

Almost two decades ago, Gough and Tunmer (1986) emphasized the importance of vocabulary in comprehension and stressed that although vocabulary development is important, it is unfortunately ignored. Since then, considerable information has accumulated on the relationship between vocabulary and comprehension; unfortunately, this relationship is not fully understood: “We have much information and perhaps too little clarity about the complicated relationship between vocabulary knowledge and comprehension” (Ruddell, 1994, p. 415).

The Componential Model of Reading, which adds fluency to the “Simple View” (Aaron & Joshi, 1992; Aaron, Joshi, & Williams, 1999; Joshi & Aaron, 2000), begins to address this lack of clarity. In the Componential Model, vocabulary is considered a subcomponent of comprehension, one that influences comprehension. The importance of vocabulary in influencing comprehension is supported by Stahl and Fairbanks’ (1986) meta-analysis of vocabulary studies; the authors found that vocabulary knowledge most likely plays a causal role in comprehension. This relationship has been found at all grade levels and in different languages and countries (Anderson & Freebody, 1983). Moreover, the relationship is strong. Across numerous studies, the correlation between vocabulary knowledge and comprehension ranges from 0.66 to 0.75 (Just & Carpenter, 1985).

To assess the generalizability of these findings, Joshi and Aaron (2000) administered the vocabulary and comprehension subtests of the Stanford Diagnostic Reading Test—IV (SDRT—IV) (Karlsen & Gardner, 1995) to 66 sixth-graders and 42 eighth-graders. The SDRT—IV is a standardized, group administered, norm- and criterion-referenced test that uses a multiple choice format to measures reading vocabulary and comprehension. Joshi and Aaron’s findings supported the previous findings; they obtained Pearson product-moment coefficients of correlation between vocabulary and comprehension of 0.63 at the sixth grade and 0.62 at eighth grade.
Further support for vocabulary’s role as the connecting link between decoding and comprehension is offered by Chall, Jacobs, and Baldwin (1990). They found that many third-graders from working class families, based on eligibility to free and reduced lunch programs, had mastered decoding skills and could comprehend grade-level materials. When these children reached seventh grade, their decoding skills remained good; however, poor vocabulary impeded their reading comprehension.

Similarly, research studies conducted by Madden, Slavin, Karweit, Dolan, and Wasik (1993) and Pinnell, Lyons, Deford, Bryk, and Seltzer (1994) have shown that even though children made gains in reading at early grade levels, poor vocabulary impeded their reading. As early as grade two, students with poor vocabulary found it hard to catch up with average readers (Biemiller & Slonim, 2000). Further, Cunningham and Stanovich (1997), in a longitudinal study, found that vocabulary knowledge in first grade accounts for more than 30% of the variance in reading comprehension in eleventh grade; this was the most variance contributed by a single variable.

Students’ vocabulary knowledge is influenced by the amount of words they are exposed to from their very early years. Hart and Rinsley (1995), for example, found qualitative and quantitative differences in the words encountered by children from lower socioeconomic status (SES) and higher SES families. They found that children from higher SES families were exposed to approximately 30,000 words per year while children from lower SES families were exposed to approximately 10,000 words. In other words, children from higher SES families were exposed to approximately three times the amount of words than children from low SES families. Further, higher SES children were exposed to a vocabulary that was much more encouraging, supportive, and explaining; in contrast, lower SES children were exposed to a vocabulary that focused more on “negative” words and commands, such as “Don’t do that.”

Studies by Dickinson and Tabors (2001), Hart and Rinsley (1995), and White, Graves, and Slater (1990) have further shown that poor vocabulary development in children’s early years negatively affects their reading comprehension in later years. Consistent with these findings, Curtis (1987) reported that children with a poor vocabulary tended to define words in terms of the context in which they encountered them, while children with better vocabulary knowledge defined words in more general and abstract terms. For instance, children with poor vocabulary tended to define “eclipse” in associative terms such as “solar eclipse” and “lunar eclipse,” while children with good vocabulary knowledge defined eclipse as “conceal,” “darken,” “obscure,” and “hide from view.”
ASSESSMENT OF VOCABULARY

In many respects, assessing a student’s vocabulary is quite difficult. Considerable research is needed to find ways that are more comprehensive and pinpointed. No one measure or strategy is perfect or absolute. Nevertheless, much can be done to estimate student’s vocabulary development. Both standardized measures and informal reading inventories can prove useful.

Most standardized reading tests have subtests that assess vocabulary knowledge. For instance, the Gates-MacGinitie Reading Tests (GMRT) (MacGinitie, MacGinitie, Maria, & Dreyer, 2000) and the SDRT (Karlsen & Gardner, 1995) are group-administered tests that use a multiple choice format to measure students’ knowledge of word meaning. The Peabody Picture Vocabulary Test—III (PPVT—III) (Dunn & Dunn, 1999) is an individually administered test that requires the student to listen to the examiner pronounce a word and then select the right match from four pictures. This recognition task measures receptive vocabulary.

To obtain a more accurate estimate of the students’ vocabulary knowledge, it is desirable to administer tests of both reading and listening vocabulary. The Woodcock Language Proficiency Battery—Revised (WLPB-R) (Woodcock, 1991) has subtests in both areas. Unlike the GMRT and SDRT, which measure vocabulary knowledge in a multiple choice format, the WLPB—R measures vocabulary by asking students to supply a synonym or an antonym for a specific word. Because this is a recall task, it might provide a more reliable measure of an individual’s vocabulary knowledge than would a recognition task.

Although informal reading inventories lack norm-referenced criteria for assessing meaning vocabulary, they provide opportunities for examiners to question students about specific vocabulary words. As such, they may provide valuable insight as to whether or not an inadequate vocabulary is adversely affecting a student’s reading comprehension.

VOCABULARY INSTRUCTION

Generally, children acquire about ten new words per day from the time they are two years old and will acquire approximately 14,000 words by the time they are six years old (Clark, 1993). A survey by Nagy and Anderson (1984) indicated that the average high school graduate had an oral vocabulary of about 45,000 words.
Interestingly, this number is almost three times the nearly 18,000 words Shakespeare used in all of his writings (Pinker, 1994). In spite of these oral vocabulary numbers, the average fourth grader can recognize only about 3,000 words from print (Chall, 1987; Snow, Burns, & Griffin, 1998; White, Graves, & Slater, 1990). Part of the reason for such a large discrepancy between oral and reading vocabularies may lie in the amount of reading that students do.

Most of the words that students learn are learned in context; relatively few are learned through direct instruction (Beck & McKeown, 1991; Nagy & Herman, 1987). According to Beck and McKeown (1991) and Biemiller (1999), in a given year, only about 300 words are learned in school through direct vocabulary lessons. From the fourth grade on, most words are learned incidentally through books and stories (Fielding, Wilson, & Anderson, 1984; Nagy & Herman, 1987).

Even though reading is a major source of vocabulary development, poor readers learn fewer words from reading than do good readers (Jenkins, Stein, & Wysocki, 1984). This is because poor readers tend to read easier materials and fewer books than do good readers; consequently, poor readers’ vocabularies grow at a slower pace. Students with robust vocabularies, on the other hand, read more, comprehend better, and thus read more still, improving their vocabularies. This poor reader/good reader phenomenon is commonly referred to as the Matthew Effect after a passage in the Bible’s Book of Matthew: the rich get richer and the poor get poorer (Stanovich, 1986; Walberg & Tsai, 1983). Carver (1994) found that when students read books that are moderately challenging, they have a better opportunity to learn new words than when they read books that are easy for them. Conversely, if the text contains too many unfamiliar words and concepts, word learning becomes difficult. The teacher, therefore, has to select reading assignments that are challenging but not frustrating.

At present, vocabulary is often taught by asking students to look for dictionary definitions (Rupley & Nicholas, 2005). Effective instruction, however, requires more than this (Beck, McKeown, & Kucan, 2001; Klesius, Griffith, & Zielonka, 1991). As opposed to associative, rote-memory ‘dictionary-based’ instruction, meaning-based approaches to learning vocabulary are more effective, resulting in more lasting memory and better understanding (Beck, McKeown, & Kucan, 2001; Klesius, Griffith, & Zielonka, 1991).

To use meaning-based instruction, teachers might embed words in sentences and draw students’ attention to the context. Subsequently, sentences with missing words could be given to students and students asked to supply them by guessing from context. The use of antonyms
and synonyms also make words meaningful. Teachers might also use structural analysis to make words meaningful. For example, teachers might show students how knowing the meaning of common morphemic roots can provide insight into word meanings: knowing the meaning of “rupt” (to break) can unlock the meaning of *rupture, erupt, disrupt, corrupt, bankrupt, abrupt, interrupt, irrupt*. Knowing the meaning of “tract” (a drawing out) can unlock the meaning of *tractor, traction, contract, subtract, retract, protract*.

Studies by Henry (1993, 1999), Moats (2000), Read (1971), Treiman (1993), and Venezky (1999) show that word origin or etymology also can make the learning of words momentous. The fact that words have different histories makes the study of words both meaningful and interesting. For instance, old English or Anglo-Saxon words are high-frequency words and are common in elementary school textbooks. Examples include *head, blue, knee,* and *write*. Such words comprise approximately 15% of English and are acquired easily. Another 15% of words are specialized words of Greek origin: *isotope, cyclone,* and *tsunami.* Such words occur mainly in science textbooks. About 60% of English words are derived from Latin and are found everywhere; they can be especially important for reading comprehension when found in content area textbooks. “Audi” (to hear) is one example; from it, many words are formed: *auditory, audience, audit, auditorium, audible.* Beck, McKeown, and Kucan (2001) call these second-tier words because students generally encounter them after third grade.

In addition to etymology, stories behind some words will make them carry greater weight. For instance the word morphine is derived from Morpheus who, according to Roman mythology, was the god of dreams and the son of Somnus, god of sleep. From Somnus comes the words *insomnia* and *somnambulism,* referring to sleeplessness and sleep-walking, respectively.

In addition to using context clues, etymology, and structural analysis, the Drop Everything and Read (DEAR) program has been found to be useful in improving vocabulary (Anderson, Wilson, & Fielding, 1988; Greaney, 1980). Joshi, Aaron, Hill, & Ocker (submitted) modified the DEAR program to a *Drop Everything and Write* program in which, for 20 minutes daily, fourth-graders were asked to communicate with their peers through written notes only; no talking was allowed. At the beginning of the project, students were reluctant to write notes to each other, but towards the end of the semester, they felt more comfortable doing so. Also included in the study was a comparison group in which children were allowed to speak to one another. Pre- and post-tests results on the SDRT-IV (Karlsen &
Gardner, 1995) showed that the treatment group’s vocabulary skills improved significantly when compared to the control group and that the treatment group students used more words and wrote in longer and grammatically more complex sentences than they did at the beginning of the study. This suggests a yet-to-be-tested hypothesis—that encouraging writing improves reading comprehension.

Additional vocabulary instruction techniques are found throughout this issue of *Reading and Writing Quarterly: Overcoming Learning Difficulties*. Techniques include

- the alphabet/synonym or alphabet/antonym activity (Fisher & Blachowitz, 2005), where students have to give synonyms and antonyms that begin with the same letter as words on a list; in essence, they have to match each word with a synonym or antonym that begins with the same letter
- visual displays of words such as webbing, semantic feature analysis, and semantic word mapping (Rupley & Nichols, 2005)
- structural analysis that teaches students roots and affixes (Harmon, Hedrick, & Wood, 2005)
- word derivation, etymology and the use of imagery (Sadoski, 2005).

**CONCLUSION**

Developing a larger vocabulary is often a critical factor in improving reading comprehension. In fact, most readability formulas determine the difficulty of text on the basis of its vocabulary load (Chall & Dale, 1995). Unfortunately, the field of reading has much to learn about the precise relationship between vocabulary and comprehension. In general, the studies that have looked into vocabulary’s role in reading have found that to comprehend, students need an adequate vocabulary.

What also has not received much attention is the role of vocabulary knowledge in fluent reading. Because fluent reading is largely determined by the reader’s stock of sight words, it is logical to assume that strong vocabulary knowledge facilitates fluency in reading. Of course, this hypothesis needs to be empirically assessed.

In this article, the advantage of strategies, such as morphological analysis, word origin tracing, and discussions of word relationships (e.g., semantic mapping) were briefly alluded to. Regardless of the instructional strategies used, the common denominator of these strategies is drawing student attention to word meanings. Why? If
words are meaningful to students, they are more easily learned and retained than if only memorized.

An additional factor to keep in mind is that students should not only know many words but should be given abundant opportunities to use them. Usually, there is a gap between students’ receptive and expressive vocabulary; that is, words they know when they hear or read them (receptive vocabulary) and words they use to express themselves, orally and in writing (expressive vocabulary). One of the teachers’ goals should be to encourage students to use as many of their receptive vocabulary words as possible, when speaking and writing. This should help to solidify the words in their memory and help them to expand their vocabularies.

REFERENCES


